

CLAIMS

What is claimed is:

1. An electrical cable having a local longitudinal axis and comprising:  
a central conductor structure comprising  
an electrically conducting central conductor,  
a layer of a central conductor insulation overlying the central  
5 conductor, and  
an electrically conducting central conductor shield overlying the  
layer of central conductor insulation;  
a plurality of spiral conductor structures overlying and spirally wrapped  
around the central conductor structure, each of the spiral conductor structures  
10 comprising  
an electrically conducting spiral conductor, and  
a spiral conductor insulation overlying the spiral conductor,  
each spiral conductor structure having no electrically conducting shielding  
thereon;  
15 an electrically conducting outer shield overlying the plurality of spiral  
conductors; and  
an outer insulation overlying the electrically conducting outer shield.
2. The electrical cable of claim 1, wherein the electrical cable is  
substantially circular viewed in cross section perpendicular to the local  
longitudinal axis.
3. The electrical cable of claim 1, wherein the central conductor  
comprises a plurality of electrically conducting central conductor wires.
4. The electrical cable of claim 1, wherein the central conductor is a  
coaxial wire structure.

5. The electrical cable of claim 1, wherein each spiral conductor comprises a plurality of electrically conducting spiral conductor wires.

6. The electrical cable of claim 1, wherein the plurality of spiral conductor structures are each of substantially the same diameter.

7. The electrical cable of claim 1, wherein at least some of the plurality of spiral conductor structures are of different diameters.

8. The electrical cable of claim 1, wherein each spiral conductor structure retains a same pair of circumferentially adjacent spiral conductor structures along a length of the electrical cable.

9. The electrical cable of claim 1, wherein each spiral conductor structure has a designated identity, and wherein a circumferential arrangement of each spiral conductor structure is selected responsive to its designated identity and to the designated identities of each of a pair of circumferentially adjacent spiral conductor structures.

10. The electrical cable of claim 1, further including a spiral spacer structure spirally wrapped around the central conductor structure, the spiral spacer structure lying between two spiral conductor structures in a side-by-side relationship.

11. An electrical cable having a local longitudinal axis and comprising:  
a central conductor structure comprising  
an electrically conducting central conductor,  
a layer of central conductor insulation overlying the central  
conductor, and  
an electrically conducting central conductor shield overlying the  
layer of central conductor insulation;  
a plurality of spiral conductor structures overlying and spirally wrapped

around the central conductor structure, each of the spiral conductor structures  
10 comprising

an electrically conducting spiral conductor, and  
a spiral conductor insulation overlying the spiral conductor,

wherein

each spiral conductor structure has no electrically  
15 conducting shielding thereon, and wherein

each spiral conductor structure retains a same pair of  
circumferentially adjacent spiral conductor structures along a length of the  
electrical cable, wherein

each spiral conductor structure has a designated  
20 identity, and wherein

a circumferential arrangement of each spiral  
conductor structure is selected responsive to its designated identity and to the  
designated identities of each of the pair of circumferentially adjacent spiral  
conductor structures;

25 an electrically conducting outer shield overlying the plurality of spiral  
conductors; and

an outer insulation overlying the electrically conducting outer shield,  
wherein the electrical cable is substantially circular viewed in cross section  
perpendicular to the local longitudinal axis.

12. The electrical cable of claim 11, wherein the central conductor  
comprises a plurality of electrically conducting central conductor wires.

13. The electrical cable of claim 11, wherein each spiral conductor  
comprises a plurality of electrically conducting spiral conductor wires.

14. The electrical cable of claim 11, wherein the plurality of spiral  
conductor structures are each of substantially the same diameter.

15. The electrical cable of claim 11, wherein at least some of the

plurality of spiral conductor structures are of different diameters.

16. The electrical cable of claim 11, further including  
a spiral spacer structure spirally wrapped around the central conductor  
structure, the spiral spacer structure lying between two spiral conductor structures  
in a side-by-side relationship.

17. A method of preparing an electrical cable, comprising the steps of  
providing a central conductor structure comprising  
an electrically conducting central conductor,  
a layer of central conductor insulation overlying the central  
5 conductor, and  
an electrically conducting central conductor shield overlying the  
layer of central conductor insulation;  
providing a plurality of spiral conductor structures each having a  
designated identity and comprising  
10 an electrically conducting spiral conductor, and  
a spiral conductor insulation overlying the spiral conductor,  
each spiral conductor structure having no electrically conducting shielding  
thereon;  
selecting a circumferential arrangement of each spiral conductor structure  
15 responsive to its designated identity and to the designated identities of each of a  
pair of circumferentially adjacent spiral conductor structures;  
wrapping the spiral conductor structures around the central conductor  
structure in a spiral pattern, each spiral conductor structure retaining the same pair  
of circumferentially adjacent spiral conductor structures along a length of the  
20 electrical cable;  
placing an electrically conducting outer shield overlying the spiral  
conductor structures that are wrapped onto the central conductor structure; and  
placing an outer insulation overlying the outer shield to form the electrical  
cable having a local longitudinal axis.

